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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR   | ATTORNEY DOCKET NO.               | CONFIRMATION NO.       |
|-----------------|-------------|--|-----------------------------------|------------------------|
| 10/558,997      | 12/01/2005  | Wolfgang Mueller   | 03/14 TITK                        | 8205                   |
| 7590            | 07/13/2007  | Klaus Schweitzer<br>ProPat<br>425 C South Sharon Amity Road<br>Charlotte, NC 28211 | EXAMINER<br>NWAONICHA, CHUKWUMA O |                        |
|                 |             |  | ART UNIT<br>1621                  | PAPER NUMBER           |
|                 |             |  | MAIL DATE<br>07/13/2007           | DELIVERY MODE<br>PAPER |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

|                              |                                   |                     |  |
|------------------------------|-----------------------------------|---------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b>            | <b>Applicant(s)</b> |  |
|                              | 10/558,997                        | MUELLER ET AL.      |  |
|                              | Examiner<br>Chukwuma O. Nwaonicha | Art Unit<br>1621    |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 01 December 2005.  
 2a) This action is FINAL.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-8 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-8 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                  | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 5) <input type="checkbox"/> Notice of Informal Patent Application |
|   | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Current Status***

Claims 1-8 are pending in the application.

### ***Priority***

Applicants' claim for domestic priority under 35 U.S.C. 119(e) is acknowledged.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**Claim 6** is rejected under 35 U.S.C. 102(b) as being anticipated by Matsumoto et al., {JP 0128452, See Abstract}.

Matsumoto et al. disclose applicants claimed poly-DOPO with unsaturated compounds. Applicants have claimed a product by way of a product by process claim. The Examiner did not give any patentable weight to the process step. See poly-DOPO with unsaturated compounds in the abstract, and MPEP 2113.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having

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ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto et al., {JP 01284521}.

Applicants claim a process for producing organic compounds containing poly-DOPO in the presence of acetylenically unsaturated compounds; wherein all the variables are as defined in the claims.

**Determination of the scope and content of the prior art (M.P.E.P. §2141.01)**

Matsumoto et al. teach a polyesters are manufactured without lowering mech. strength by copolymerizing 1-10 mol% (based on total acid components) ester-forming functional group-containing unsaturated compounds to polyesters at  $\leq 260^\circ$  to intrinsic viscosity 0.25-0.48, then polycondensing with 0.7-1.0:1 (equivalent ratio, based on unsaturated bonds of the copolymerized unsaturated compounds)  $\text{PHR}_1\text{R}_2(\text{O})_n$  ( $\text{R}_1, \text{R}_2 = \text{C}_{1-20}$  alkyl,  $\text{C}_{6-20}$  aryl,  $\text{C}_{1-20}$  alkoxy,  $\text{C}_{6-20}$  aryloxy;  $\text{R}_1, \text{R}_2$  may be bonded to form a ring;  $n = 0, 1$ ) at  $\leq 270^\circ$  to intrinsic viscosity  $\geq 0.5$ . Thus, a slurry of (1.6:1, mol ratio) ethylene glycol (I) and terephthalic acid was added to bis( $\beta$ -hydroxyethyl) terephthalate and its oligomers and heated at  $255^\circ$ , then treated with (1:0.8, mol. ratio) maleic anhydride (II)-

I mixture (II content is 2.5 mol% of total acid components) at 260° in the presence of GeO<sub>2</sub> to give a polyester with intrinsic viscosity 0.45, which was treated with 2.0 mol% (based on total acid components) 9,10-dihydro-9-oxa-10-phosphophenanthrene-10-oxide at 260° and 0.3 torr to give a fire-resistant polyester with intrinsic viscosity 0.65 and m.p. 250° showing good strength. See abstract.

**Ascertainment of the difference between the prior art and the claims (M.P.E.P..**

**§2141.02)**

Matsumoto et al. process for producing organic compounds containing poly-DOPO in the presence of acetylenically unsaturated compounds differ from the instantly claimed process in that applicants' process specifically employ acetylenically unsaturated compounds while Matsumoto et al. teach unsaturated compounds. Another difference between applicants claimed invention and that of Matsumoto et al. is that applicant claim a process wherein the mole ratio of DOPO per triple bond is 1.5 to 3 and the reaction conducted in 1,4-dioxane while Matsumoto et al. are silent about the mole ratio of DOPO per triple and conducting in 1,4-dioxane.

**Finding of prima facie obviousness--rational and motivation (M.P.E.P.. §2142-2143)**

The instantly claimed process for producing organic compounds containing poly-DOPO in the presence of acetylenically unsaturated compounds would have been suggested to one of ordinary skill because one of ordinary skill wishing to obtain poly-DOPO in the presence of unsaturated compounds is taught to employ the processes of Matsumoto et al.

One of ordinary skill in the art would have a reasonable expectation of success in practicing the instant invention by employing a solvent and varying the catalysts, the unsaturated compounds, and the mole ratio of DOPO per triple bond from the teachings of Matsumoto et al. to arrive at the instantly claimed process for preparing poly-DOPO. Said person would have been motivated to practice the teaching of the reference cited because it demonstrates that poly-DOPO is useful in industrial applications. Therefore, the instantly claimed invention would therefore have been obvious to one of ordinary skill in the art.

**No Claim is allowed.**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chukwuma O. Nwaonicha whose telephone number is 571-272-2908. The examiner can normally be reached on Monday thru Friday, 8:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Yvonne (Bonnie) Eyler can be reached on 571-272-0871. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

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you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Chukwuma O. Nwaonicha, Ph.D.

Patent Examiner

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**ELVIS Q. PRICE, PH.D.  
PRIMARY EXAMINER**

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Yvonne (Bonnie) Eyler  
Supervisory Patent Examiner,  
Technology Center 1600